Pharmacological treatment in heart failure.

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An increase in the incidence of hypertension and coronary artery disease as well as the aging of the population have been implemented in the ever growing number of heart failure patients seen worldwide. Although many impressive steps have been taken during the last few years but CHF still carries a high morbidity and mortality rate especially in more advanced stages.

The treatment of advanced heart failure is a multi-disciplinary task which requires the utmost dedication on behalf of the patient and physician both. Executing a tolerable multi drug combination plan and incorporating non-pharmacological measures, such as CRT, VAD and non-invasive ventilation devices at the right time need an ample amount of knowledge in this field. Modifying life style, avoiding precipitating factors and treating underlying conditions such as anemia or sleep apnea are simple measures that should also be integrated into the treatment strategy. At the end of the spectrum heart transplantation should be considered for the treatment of end stage heart failure.

Medical treatment

Beta blockers once considered contraindicated in patients with heart failure these drugs are now one of the most important medications we have for treating this syndrome. The understanding of how beta blockers reduce symptoms and increase survival provided us with a better understanding of the pathophysiology of heart failure and brought us to consider heart failure not as simple myocardial mechanical malfunction but as a complex syndrome of neurohumoral imbalance triggered by the event of the low cardiac output or high ventricular filling pressures and the hemodynamic changes they cause. Now beta blockers with proved efficacy in heart failure including Metoprolol succinate and Carvedilol are used in most cases of heart failure with reduced ejection fraction. It is important to note that beta blockers should not be started in severely decompensated cases and in less severe cases caution should be used and dose adjustments should be considered. Considering all findings most heart failure patients should be treated with a beta blocker.

ACE inhibitors, ARBs and Spironolactone considering the neurohumoral nature of heart failure it comes as no surprise that one of the most important targets for modern therapy was the rennin angiotensin aldosterone pathway. ACE-I proved not only to control hypertension and improve remodeling in post MI patients but also to reduce the mortality in patients with reduced ejection fraction. Being well tolerated ACE-Is are considered one of the most important medications introduced to the armament of heart failure therapy. Although ARBs are not identical to ACE-Is they are considered to be a substitute to ACE-I if the latter are not tolerated.

Spironolactone an aldosterone antagonist compound first used as a diuretic was proved to reduce fibrosis in failing hearts and has been used for this purpose in selected cases of heart failure.

Diuretics are widely used in the treatment of heart failure. They are indicated to lessen the signs of congestion and reduce the preload. They carry a risk of metabolic derangements and can cause electrolyte and acid/base imbalance as well. Interestingly Diuretics are part of the treatment strategy of the cardiorenal syndrome as well as being implicated as a cause for this syndrome.

Digoxin although one of the first medications to be used in heart failure its use has been discouraged by many authors. Despite the negative attitude Digoxin is still quite useful in the setting of atrial fibrillation when rate control is not adequate as well as cases on full medical therapy and repeated hospitalizations.

New medications

Ivabradine acts by blocking the funny channel and reducing the heart rate without affecting the blood pressure making it different from beta blockers and calcium channel blockers. Many believe it to be a major step in improving the way we treat heart failure. It should be noted that it has no effect if the patient is in atrial fibrillation.

Serelaxin targets the Relaxin receptor and has been approved for the treatment of acute heart failure and could be considered the latest drug added to the group of medications used in the treatment of heart failure. Although it has been approved for heart failure it shows promise for the treatment of patients with chronic heart failure too.

It is obvious that the many aspects of heart failure treatment cannot be covered in a brief article such as this. Even a full coverage of the topics and headings would need more space. We hope that through this review we have stimulated the interest of the reader to consider the many different medications used in the treatment of heart failure and outline the basics in choosing anyone of them.